

What is claimed is:

1. A method of forming a ferroelectric substance thin film comprising:

5 forming a seed layer including ultra-fine particle powder containing an element constituting a ferroelectric substance thin film on a surface of a substrate; and

forming the ferroelectric substance thin film on the seed layer.

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2. The method of forming a ferroelectric substance thin film as claimed in claim 1, wherein forming the seed layer includes:

15 applying solution containing an element constituting the ferroelectric substance thin film to the surface of the substrate; and

drying and baking the solution applied to the substrate.

20 3. The method of forming a ferroelectric substance thin film according to claim 2, wherein forming the ferroelectric substance thin film includes annealing the seed layer for crystallization.

25 4. A method of forming a ferroelectric substance thin film including:

applying a ferroelectric substance thin film applying liquid including ultra-fine particle powder containing at least one kind of elements constituting the ferroelectric substance thin film to a surface of a substrate; and

5 baking the ferroelectric substance thin film applying liquid applied to the surface of substrate.

5. The method of forming a ferroelectric substance thin film according to claim 4, further comprising annealing
10 the baked ferroelectric substance thin film applying liquid for crystallization.

6. A method of forming a ferroelectric substance memory including an FET of an MFMIS structure, said method
15 comprising:

 forming a gate insulating film on a semiconductor substrate and between source-drain regions;

 forming a floating gate on the gate insulating film;

 forming a ferroelectric substance layer on the floating
20 gate; and

 forming a control gate on the ferroelectric substance layer,

 wherein forming the ferroelectric substance layer comprises:

25 forming a seed layer including an ultra-fine particle

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powder containing an element constituting a ferroelectric substance thin film on a surface of the floating gate; and forming the ferroelectric substance thin film on the seed layer.

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7. A method of forming a ferroelectric substance memory including an FET of an MFMIS structure, said method comprising:

forming a gate insulating film on the surface of the semiconductor substrate and between a source-drain regions;

forming a floating gate on the gate insulating film;

forming a ferroelectric substance layer on the floating gate; and

forming a control gate on the ferroelectric substance layer,

wherein forming the ferroelectric substance layer comprises:

applying a ferroelectric substance thin film applying liquid including ultra-fine particle powder containing at least one kind of elements constituting a ferroelectric substance thin film to a surface of the floating gate; and

baking the ferroelectric substance thin film applying liquid applied to the surface of the floating gate.

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8. A method of forming a ferroelectric substance

memory comprising:

forming an FET including a gate electrode formed on a surface of a semiconductor substrate between source-drain regions formed on surface of the semiconductor substrate through a gate insulating film; and

forming a ferroelectric substance capacitor connected with one of the source-drain regions of the FET through a storage node contact,

wherein forming the ferroelectric substance capacitor comprises:

forming a first electrode; a process applying ferroelectric substance thin film applying liquid including ultra-fine particle powder containing at least one kind of elements constituting the ferroelectric substance thin film to the surface of the first electrode;

form a ferroelectric substance thin film by baking ferroelectric substance thin film applying liquid applied to the surface of the first electrode; and

forming a second electrode on the ferroelectric substance thin film.

9. A method of forming a ferroelectric substance memory comprising:

forming an FET including a gate electrode formed on a surface of a semiconductor substrate between source-drain

regions formed on a surface of the semiconductor substrate through a gate insulating film; and

forming a ferroelectric substance capacitor connect with one of the source-drain regions of the FET through a storage
5 node contact,

wherein forming the ferroelectric substance capacitor comprises:

forming a first electrode;

forming a seed layer including ultra-fine particle powder
10 containing an element constituting a ferroelectric substance thin film on a surface of the first electrode; and

forming the ferroelectric substance thin film on the seed layer.